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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/066,168	04/24/1998	MIKIO KATSUBE	10089/4	8473

26646 7590 03/06/2002

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EXAMINER

FORTUNA, ANA M

ART UNIT	PAPER NUMBER
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1723

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DATE MAILED: 03/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/066,168

Applicant(s)

Katsube et al.

Examiner

Ana Fortuna

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 11, 2001
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5, and 6 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

Art Unit: 1723

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the permeate outlet extending through the end wall of the container must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Objections

2. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim been renumbered 3, and 4, added in paper No. 24, filed on 12/11/01, are now renumbered as claims 5-6, since claims 3 and 4 have been canceled in paper no.8, filed on 1/03/2000.

Art Unit: 1723

Claim Rejections - 35 USC § 112

3. Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are unclear as to whether the container and the vessel are the same elements. The specification provides bases for a cylindrical pressure vessel (2) provided with end plates (10, 10') defining a container, inherently having inner and outer walls or surfaces. The claims should refer to the container having these limitations. The term "further wherein the container comprises a cylindrical vessel", in the last paragraph of the claims is confusing as to whether additional container or vessel is provided in the module. The container is formed by the vessel and the end plates, as shown in the figures.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sekino et al (4,293,419)('419) in view of Ethienne et al (5,380,433)('433), Bickson et al (5,160,042)('042), and Matsuura(Synthetic membrane and membrane separation process (page

Art Unit: 1723

314).. Reference '419, of record, and discussed in previous office actions, disclose the double bundle hollow fiber membranes (elements 12 and 12', figures). Regarding claim 1, the feed tube (11, 11'), the connecting conduit (6), the container having the wall and end wall (2 and 2'), and the permeate discharge (10 and 10') is also disclosed. '419 fails to disclose the feed provided at on end of the container, and the retentate discharge proximal to the end of the container, however, discloses discharging the concentrate at the end of one of the modules, where the mayor solid accumulation is expected (elements 7 and 9). '419 fails to disclose feeding the module or positioning the feed entrance to the feed tube at the end walls of the housing. Reference '042 discloses hollow fiber membrane modules having the inlet to the central feed tube at the end of the container, e.g. axially to the central perforated pipe (element 10, figures 1 and 5). '419 also fails to disclose positioning the discharge for retentate substantially at the end of the container. Reference '042 also disclose positioning the retentate outlet (2) at any position of the container wall (column 8, lines 29-50, column 9, lines 31-36). Based on the teaching o '041, it would have been obvious to one skilled in the art at the time the invention was made to arrange the apparatus of '419, to open the feed and retentate out as suggested by reference '042. Reference '433 further teaches feeding a hollow fiber bundle axially through the central feed pipe, and collecting the residue or retentate through an outlet at the end of the container (elements 30 and 15), therefore, the positioning of the residue outlet at the end or substantially at the end of the housing is suggested by '433. '433 also discloses discharge for permeate through the container wall (element 38). Matsuura teaches housing for hollow fiber modules having the retentate discharge

Art Unit: 1723

provided at one end of the housing and through the housing wall (Fig. 7.10 , page 314). It would have been obvious to one skilled in the art at the time the invention was made to modify a hollow fiber membrane module by providing the retentate discharge at the end of the module and in contact with the retentate space or space between the hollow fiber bundle and the inner wall of the housing or container, as suggested by Matsuura, or as suggested by Bickson, since Bickson suggest location at any position avoiding build up of pressure (column 8, lines 29-34). The build up of pressure is conventionally caused by solid accumulation in the housing.. The module of '433 will remove solids accumulated at the ed of the housing, since the outlet is in communication with the area near the end of the housing. As to claim 6, reference '419 teaches the inner liquid receiving plate (element 3, figure 1). It would have been also obvious to one skilled in the art at the time the invention was made to adjust the retentate discharge of the modules such that they can be used in conventional housings, as the housing disclosed by Matsuura.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure reference 4,880,440 teaches hollow fiber membrane housing having retentate discharge outlet at the end of he housing (element 408), references 5,885,454, and 5,139,669 shows the same configuration (element 7 (reference '454), and element 43, reference 669, respectively.

Art Unit: 1723

6. A limitation of the claimed combination which presented no novel or unexpected result over a similar feature used in the prior art references, and solve no stated problem, was held to be an obvious matter of design choice within the skill of the art. In re Kuble, 526 F2nd 523.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana Fortuna whose telephone number is (703) 308-3857. The examiner can normally be reached on Monday-Friday from 9:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for regular responses, and (703)872-9311 for after finals.

Ana Fortuna

February 25, 2002 .



ANA FORTUNA
PRIMARY EXAMINER